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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/698,556      | 11/03/2003  | Kaoru Okitaka        | 00862.023292.       | 1114             |

5514 7590 02/05/2007  
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| EXAMINER |
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MEYERS, JAMES A

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| ART UNIT | PAPER NUMBER |
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2109

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 02/05/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/698,556

Applicant(s)

OKITAKA, KAORU

Examiner

James A. Meyers

Art Unit

2109

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20040319.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This action is in response to the initial filing of November 11, 2003. Claims 1-4 are pending and have been considered below.

#### ***Specification***

1. The disclosure is objected to because of the following informalities: the examiner notes the use of acronyms (e.g. CAD, IDEAS, PATRAN, etc.) throughout the specification without first including a description in plain text, as required. Appropriate correction is required.
2. The use of the trademarks IDEAS<sup>TM</sup>, PATRAN<sup>TM</sup> and FEMAP<sup>TM</sup> has been noted in this application. They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

#### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-4 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-4 are directed towards an abstract idea for which there is no concrete, tangible and useful result. While the claims teach a

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concrete process, there is no display means or output step claimed. Therefore, the claims do not teach a tangible or useful result.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finnigan et al. (US 5,345,490) in view of De Groote et al. (US 2,572,886).

Claim 1: Finnigan discloses a model conversion method comprising generating tetrahedral elements for an input three-dimensional model (Column 5, lines 47-49), but does not explicitly disclose connecting intermediate nodes of sides of the elements to create a triangular or rectangular shell element. However, De Groote discloses connecting intermediate nodes of sides of a tetrahedral element to form a triangle (Figure 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to use the step disclosed by De Groote in the method of Finnigan. One would have been motivated to do so to allow for a faster representation (ie. two dimensional instead of three dimensional) of the item being representing in the method of Finnigan.

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Claim 2: Finnigan and De Groote disclose a method as in Claim 1 above, but do not disclose that the 3D shape is a shape having a thin-walled structure or that the tetrahedral elements are a single layered structure. However, it would have been obvious to one having ordinary skill in the art at the time of invention that the 3D shape of Finnigan could be any reasonably shaped structure, including one with thick or thin walls. Additionally, it would have been obvious to one having ordinary skill in the art at the time of invention for a structure in the method of Finnigan to have only a single layer of tetrahedral elements. One would have been motivated to model the structure as such to reduce the number of elements in the model and decrease the computation on the modeling system without decreasing the accuracy of the model.

Claim 3: Finnigan and De Groote disclose a method as in Claim 1 above, but do not disclose that the plate thickness of the three dimensional shape is calculated or that said plate thickness information is added to the shell element. However, it would have been obvious to one having ordinary skill in the art at the time of invention to calculate the plate thickness. One would have been motivated to do so because the original model already contained the parameters of the structure and such calculation would be trivial. Additionally, it would have been obvious to one having ordinary skill in the art at the time of invention to add said plate thickness information to the shell element. One would have been motivated to do so to prevent a loss of important information about the modeled structure when going from three dimensions to two dimensions while still decreasing calculation computation time.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Finnigan et al. (US 5,345,490) and De Groote et al. (US 2,572,886) as applied to claim 1 above, and further in view of Itoh et al. (US 6,121,973).

Claim 4: Finnigan and De Groote disclose a method as in Claim 1 above, but do not disclose that two adjacent triangular shell elements are converted into a rectangular shell element as needed. Itoh discloses that two adjacent triangular shell elements are converted into a rectangular (quadrilateral) shell element as needed (Column 2, lines 18-22). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to include the step of Itoh in the method of Finnigan. One would have been motivated to do so to reduce the number of elements in the model and decrease the computation on the modeling system without decreasing the accuracy of the model.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Meyers whose telephone number is 571-270-1690. The examiner can normally be reached on Mon-Fri (Alternate Fridays Off), EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Myhre can be reached on 571-272-6722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

1/25/2007  
JM



James W. Myhre  
Supervisory Patent Examiner